

III. SAN CARLOS APACHE TRIBE

The San Carlos Indian Reservation (San Carlos) consists of 1.9 million acres and is located 100 miles east of Phoenix, in Gila and Graham Counties, Arizona. The Reservation lies within three separate watersheds: Upper Gila River, the Salt River, and the San Pedro watersheds. Approximately 82 percent of the Reservation is located within the Gila River system, 17 percent within the Salt River system, and the remaining one percent within the San Pedro River system.

Although located in proximity to water supply sources, the SC Apache Tribe has historically not been able to use these water supplies in substantial quantities due to lack of resources. The SC Apache Tribe has a Globe Equity-59 right⁶ to irrigate 1,000 acres with 6,000 afa of Gila River water. The Gila River Water Commissioner's 1999 Then-Being-Irrigated Report lists 350 acres of land on the SC Apache Tribe Reservation as being farmed. The recent SC Apache Tribe Water Settlement Act of 1992 and associated Water Settlement Agreement now make development of additional water supplies possible. Potential uses include expansion of irrigated agriculture, mining, maintenance and/or development of recreational lakes, and leasing.

III.A. Proposed Allocations

The San Carlos' original CAP allocation was for 12,700 afa. Under the SC Apache Tribe Water Settlement Act of 1992, the Tribe received an additional CAP allocation of 48,945 afa. Under that Settlement Act, all of the 48,945 afa may be leased for use outside the Reservation.

Under the proposed allocation alternatives, the SC Apache Tribe would receive an additional CAP allocation ranging from 0 afa (under the No Action Alternative) to 40,000 afa (under Non Settlement Alternative 3). Table L-Indian-13 summarizes the proposed allocations by alternative. Table L-Indian-14 provides detail of the allocations' priorities under each alternative. Table L-Indian-15 describes lease agreements the San Carlos has entered into or has expressed a desire to enter into for the CAP water received through the Settlement Act of 1992.

| Table L-Indian-13 CAP Allocation Draft EIS SC Apache Tribe CAP Allocations (afa) | | | | | |
|---|--------------------|-------------------|-------------------------|-------------------------|-------------------------|
| | Alternative | | | | |
| CAP Allocation | No Action | Settlement | Non-Settlement 1 | Non-Settlement 2 | Non-Settlement 3 |
| Existing | 61,645 | 61,645 | 61,645 | 61,645 | 61,645 |
| Proposed | 0 | 0 | 0 | 23,447 | 40,000 |
| Total | 61,645 | 61,645 | 61,645 | 85,092 | 101,645 |

⁶ The Globe Equity 59 Decree quantified water rights in the upper Gila River basin.

| Table L-Indian-14 CAP Allocation Draft EIS SC Apache Tribe Priority of CAP Allocations (afa) | | | | | |
|---|-------------|------------|------------------|------------------|------------------|
| CAP Allocation Priority | Alternative | | | | |
| | No Action | Settlement | Non-Settlement 1 | Non-Settlement 2 | Non-Settlement 3 |
| Indian | 43,500 | 43,500 | 43,500 | 43,500 | 43,500 |
| M&I | 18,145 | 18,145 | 18,145 | 22,092 | 22,092 |
| Non-Indian Ag | 0 | 0 | 0 | 19,500 | 36,053 |
| Total | 61,645 | 61,645 | 61,645 | 85,092 | 101,645 |

| Table L-Indian-15 CAP Allocation Draft EIS SC Apache Tribe Leases and Exchanges Under All Alternatives (afa) | |
|---|--------|
| Description | Amount |
| Lease to Scottsdale, Indian priority water | 12,500 |
| Lease to Globe, M&I priority water | 3,480 |
| Lease to PD, M&I priority water | 14,000 |
| Total | 29,980 |

III.B. Non-Binding Plans to Take and Use CAP Water

A letter soliciting information regarding non-binding plans to take and use CAP water was sent to the SC Apache Tribe. In the absence of a response, the plans presented in this section were developed based upon information provided in the *Technical Assessment of the San Carlos Apache Tribe Water Rights Settlement* (Arizona Department of Water Resources, May 17, 1999) (ADWR San Carlos Apache Tribe Report) and discussions with Reclamation staff. They are speculative in nature and are presented merely to provide a basis for comparing the potential range of impacts that could occur across the range of alternatives.

III.B.1. Uses

Under all alternatives it is assumed that in order to use CAP water, San Carlos would need to enter into an exchange agreement with a downstream party that has both rights to use Gila River water and access to CAP water, most likely GRIC. Under such an exchange agreement, the downstream party would use San Carlos' CAP water in exchange for San Carlos diverting and using Gila River water.

The primary use of CAP water is anticipated to be for agricultural irrigation. The ADWR SC Apache Tribe Report identifies over 20,000 arable acres that are available within the Reservation. Table D-2 in Appendix D in that report summarizes the results of a study performed by Boyle Engineering which classified arable acres by soil type and location. For the purposes of this draft EIS, it is assumed that use of this CAP water for irrigation would occur on

the class 1 and class 2 soils in the vicinity of the Gila and San Carlos Rivers. These areas were chosen because they are closest to San Carlos Reservoir, the anticipated point of diversion. It should be noted that areas of additional arable acreage have been identified within the Reservation that could be developed, and other irrigation systems may be feasible to deliver water to those areas. For purposes of comparing impacts among the alternatives, Table L-Indian-16 lists the maximum arable acres that could potentially be farmed in these areas using the CAP water allocated.

| Table L-Indian-16 CAP Allocation Draft EIS SC Apache Tribe Combined Total CAP Allocations Potential Non-Binding Area of Farming (afa) | | | |
|--|------------------------|------------------------|--------|
| Area | Arable Acres | | |
| | Class 1 ^(b) | Class 2 ^(c) | Total |
| Tufastone & Seven Mile Wash | 1,320 | 1,727 | 3,047 |
| Cutter Ranch Creek | 1,901 | 5,725 | 7,626 |
| Gilson Wash | 518 | 945 | 1,463 |
| San Carlos River | 264 | 1,373 | 1,637 |
| Gila River | 721 | 5,092 | 5,813 |
| Goodwin Wash | 884 | 719 | 1,603 |
| Sub-Totals | 5,608 | 15,581 | 21,189 |
| Acreage Removed for Farm Roads, etc. | 1,189 | | |
| Total | 20,000 | | |
| Notes: | | | |
| (a) Source: Table D-2 from <i>Technical Assessment of the San Carlos Apache Tribe Water Rights Settlement</i> (Arizona Department of Water Resources, May 17, 1999). | | | |
| (b) Class 1 soils were particularly suited for irrigation with few or no limitations. | | | |
| (c) Class 2 soils were suited for irrigation with one or more limitations that resulted in lower productive capacity than class 1. | | | |

Typical crops that could be irrigated with this water include alfalfa, corn, vegetables, and orchards. Under the No Action, Settlement and Non-Settlement Alternative 1, no additional acreage would come into production. Under Non-Settlement Alternative 2, up to 4,700 acres out of the identified 20,000 acres could be developed. And, under Non-Settlement Alternative 3, up to 8,000 acres out of the identified 20,000 acres could be developed. These acreage estimates are based on an assumption that a reasonable water duty for San Carlos farms is five af/ac⁷.

Some of the allocated water could also be used for aquaculture, fish hatchery, livestock grazing (both for stockponds and irrigating pastureland), mining peridot and gypsum, and maintaining a minimum pool within the San Carlos Reservoir (up to 40,000 afa). If water were put to any of these uses, the amount of acreage developed for agriculture would be reduced accordingly.

⁷ It should be noted that water rights in the upper Gila River system are governed by the Globe Equity 59 Decree, which has a maximum water duty of six af per acre.

A portion or the entire additional amount of CAP water provided under the proposed allocation alternatives could also be leased instead of used on-Reservation; however, this would require additional Federal action, and cannot be considered under the currently proposed allocation.

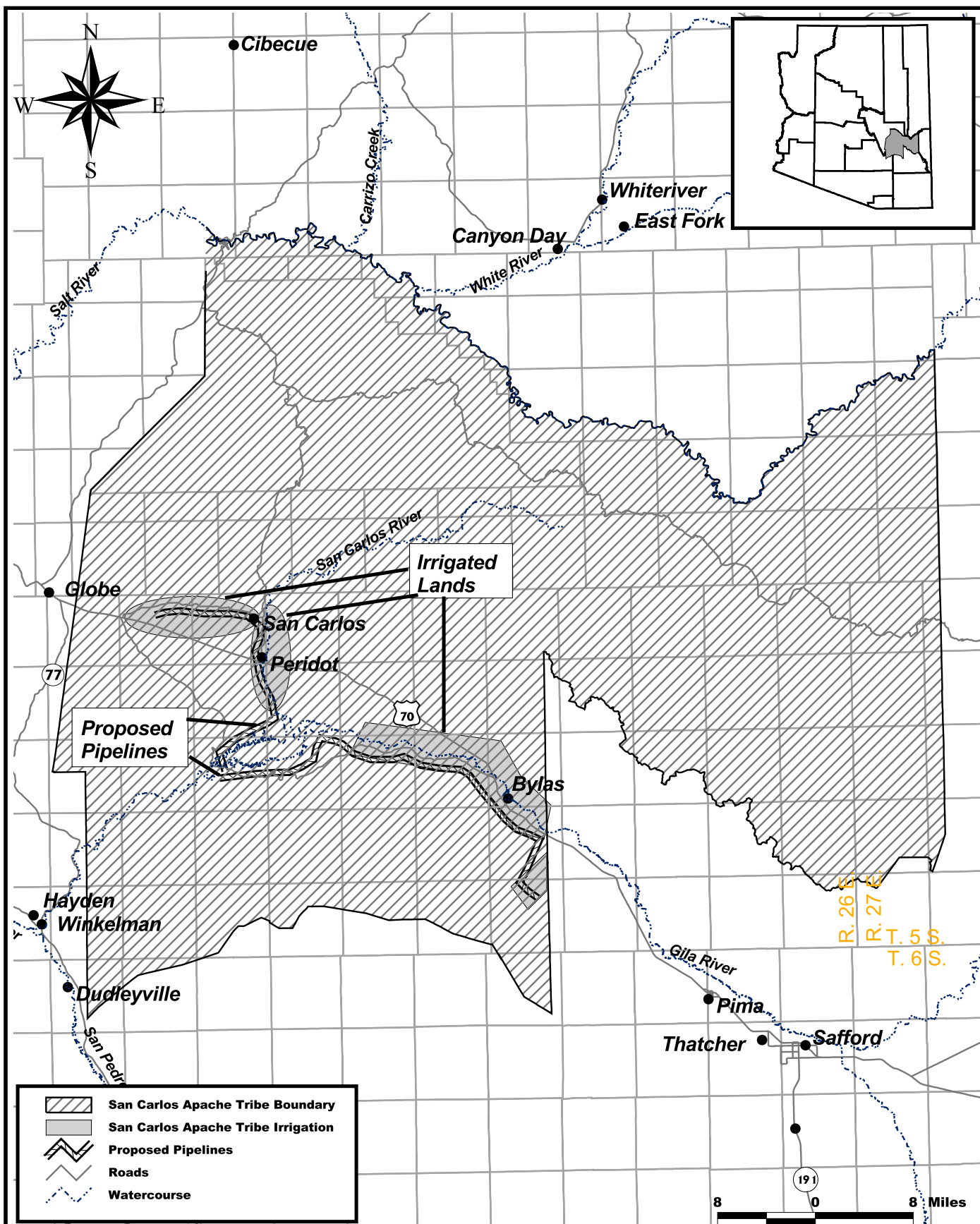
Table L-Indian-17 summarizes potential uses of SC Apache Tribe's CAP water by alternative.

| Table L-Indian-17 CAP Allocation Draft EIS SC Apache Tribe Additional CAP Allocations Potential Non-Binding End Uses of Water (afa) | | | | | |
|--|-------------|------------|------------------|------------------|------------------|
| Use | Alternative | | | | |
| | No Action | Settlement | Non Settlement 1 | Non Settlement 2 | Non Settlement 3 |
| Irrigation | 0 | 0 | 0 | 23,447 | 40,000 |
| M&I/Recreation ^(a) | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 23,447 | 40,000 |
| <u>Notes:</u> (a) Includes uses associated with San Carlos Reservoir. | | | | | |

III.B.2. Facilities

Facilities that would need to be constructed to deliver water to the areas of potential irrigation use identified above include pump stations that would divert water from the San Carlos Reservoir and pipelines to transport the water to the areas shown in Figure L-IND-6 and summarized on Table L-Indian-18. These backbone facilities would serve a maximum of approximately 8,000 acres. Assuming approximately 61 miles of new pipeline and a 100-foot wide cleared area (for construction), approximately 750 acres will be disturbed due to pipeline construction.

| Table L-Indian-18 CAP Allocation Draft EIS SC Apache Tribe Facilities Required for Additional CAP Allocation Development | | | | | |
|---|-------------|------------|------------------|------------------|------------------|
| Facilities or CAP Allocation | Alternative | | | | |
| | No Action | Settlement | Non Settlement 1 | Non Settlement 2 | Non Settlement 3 |
| New Lands (acres) | 0 | 0 | 0 | 4,700 | 8,000 |
| New Pipeline (miles) | 0 | 0 | 0 | 61 | 61 |
| New Pump Stations | 0 | 0 | 0 | 2 | 2 |



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**CAP Allocation Draft EIS
General Location Map
San Carlos Apache Tribe**

Figure #L-IND-6

III.C. Population Projection

The estimated 2001 population level for the SC Apache Tribe is 9,370 and the estimated 2051 population level is 19,613. The population is expected to grow by approximately 52 percent over the 50-year CAP contract period (i.e., 2001-2051).

III.D. Environmental Effects

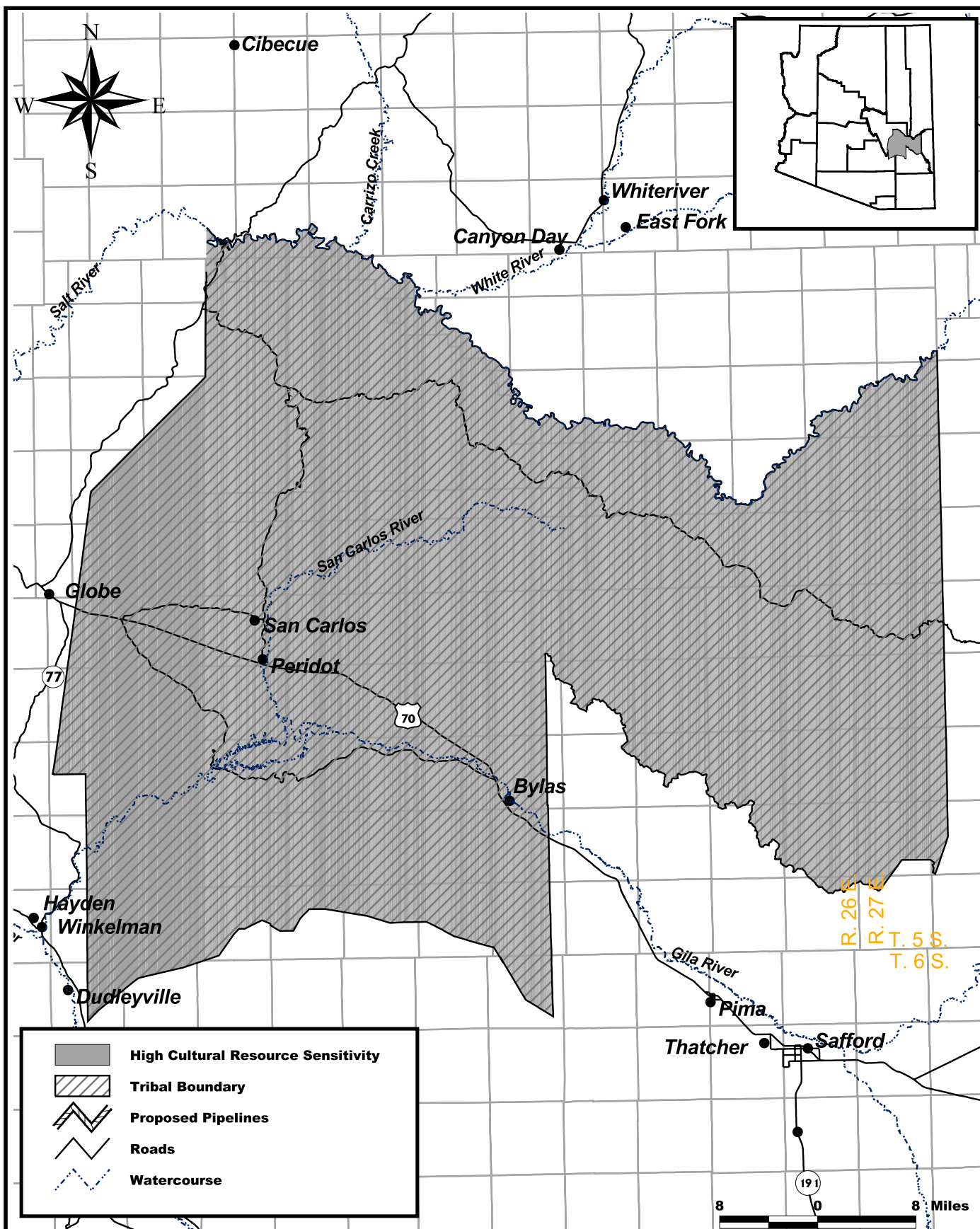
The following discussion provides some general information regarding these probable construction projects and provides a general identification of potential environmental impacts and potential mitigation measures.

III.D.1. Land Use

The land uses on the SC Apache Tribe lands include recreation, grazing, forestry, mining, and fisheries. There are also lands devoted to Tribal Communities. The development of new agricultural lands would displace other land uses – primarily grazing lands. A specific review, pursuant to NEPA, would be carried out to identify land use conflicts prior to development.

III.D.2. Archaeological Resources

Known prehistoric site types within this entity include artifact scatters, agricultural features (e.g., canals, waffle gardens, rock alignments, and possible reservoirs), resource procurement/processing loci, small farming villages, and “composite rancherías” consisting of compounds with multistory room blocks, mounds, and ball courts (e.g., Rice Ruin, Epley Ruin, Buena Vista/Curtis Ruin) (e.g., Black and Green 1995). Cultural affiliation of sites range from the Archaic (e.g., Day Mine Rockshelter) to the Salado; the area’s prehistoric resources have been particularly important in defining the origin and nature of the Salado culture (e.g., Brown 1973; Doyel 1978). Protohistoric and historic Apache sites include villages (e.g., Old San Carlos), small settlements, isolated wickiup rings, trash scatters, resource procurement/processing loci, burials, and other limited activity sites. Historic sites affiliated with other Native American, Euroamerican, and possibly Hispanic groups also are known. Historic contexts represented include commerce, transportation, mining, the lumber industry, the military, and water management (e.g., camps associated with the construction of Coolidge Dam) (Effland and Green 1985). The SC Apache Tribe has a Cultural Resources Division. Cultural resource sensitivity areas in this entity are shown in Figure L-IND-7. Based on the limited data used to generate the cultural sensitivity designations, the potential for cultural resource impacts in this entity is high. Farm development and pipeline construction as well as associated activities such as borrow sites, spoil areas, construction yards, equipment storage, and field offices have the potential to impact historic and archaeological sites. Section 106 compliance, including consultation with the affected Tribes, would be carried out to identify significant sites, and develop a plan to mitigate or avoid them.



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**CAP Allocation Draft EIS
Cultural Resources
San Carlos Apache Tribe**

Figure #L-IND-7

III.D.3. Biological Resources

III.D.3.a. Existing Habitats

The San Carlos is situated within a geological mosaic of Tertiary and younger sediments, and granitoid and volcanic rock substrates. The primary biotic community within the San Carlos Basin is the Arizona Upland Subdivision. A portion of the basin is composed of Late Tertiary lakebed deposits and riparian woodland, which are habitats for several rare species. These riparian woodlands are located along the San Carlos River, Gila River, and Black Rivers and their tributaries. Arizona Upland intergrades into Semidesert Grassland on the higher slopes. In the highest E, biotic Communities include Great Basin Conifer Woodland, Plains and Great Basin Grassland, Madrean Evergreen Woodland, and Petrane Montane Conifer Forest.

III.D.3.b Impacts to Biological Resources

New agriculture within this planning area over the 50-year study period and the construction of water delivery pipelines will result in natural habitat loss of an estimated 8,750 acres under Non-Settlement Alternative 3 and 5,450 acres under Non-Settlement Alternative 2. This new agriculture will probably occur along Gilson Wash, San Carlos River, Gila River, and Goodwin Wash. Other uses of the CAP allocation may be aquaculture, fish hatchery, livestock, mining and maintenance of a minimum pool with the San Carlos Reservoir. This last use would maintain a biological resource.

III.D.3.c. Summary of Possible Impact to T&E Species

This Tribal entity is located within Gila and Graham Counties for which there are 16 T&E species listed by USFWS. Any number of these species or their habitat might be affected. However, the extent of the possible impacts can only be fully assessed when site-specific development plans are available. In order for Reclamation to comply with Section 7 of the EASA, detailed species surveys of the potentially suitable habitat may be required. Based on the results of these surveys, Reclamation will consult with USFWS.

III.D.4. Water Resources

Under present conditions, water demands on the SC Apache Tribe lands include irrigation, domestic, stock watering, recreation, and cultural use. Groundwater is used to meet domestic purposes and a portion of the irrigation requirements. Groundwater is obtained from alluvium associated with the San Carlos and Gila Rivers and from basin fill materials. Groundwater likely occurs in the alluvium under unconfined conditions. In the basin fill, groundwater occurs under both confined and unconfined conditions. Groundwater levels are generally stable on the Reservation.

Groundwater in the alluvium and the upper portions of the basin fill along the San Carlos River generally contains less than 500 ppm of TDS. Groundwater along the Gila River generally has TDS concentrations of more than 500 ppm, and some wells produce water which contains more than 4,000 ppm of TDS. The TDS concentration for wells in the basin fill located more than two miles from the Gila River are generally less than 500 ppm.

Estimated groundwater level impacts are summarized in Table L-Indian-19, which shows the estimated change in groundwater levels from 2001 to 2051 for each alternative, and the groundwater level impact (i.e., the difference between the change in groundwater levels for each alternative relative to the change for the No Action Alternative). Each alternative reflects a rise in groundwater levels to fill currently unfilled space in the alluvium associated with the San Carlos and Gila Rivers. This results from recharge of return flows derived from irrigation of additional lands along these rivers. Impacts in year 2051 are the same for all alternatives.

Impacts of the alternatives on water quality along the San Carlos River are anticipated to be negligible. There may be some potential for improvement in groundwater quality along the Gila River; however, that potential is probably limited. Also, because declines in groundwater levels are not anticipated for the SC Apache Tribe, subsidence is not expected.

Table L-Indian-19
CAP Allocation Draft EIS
SC Apache Tribe–Groundwater Data Table

| Alternatives | Along San Carlos River(1) | | Along Gila River Area (2) | |
|--|---|---|---|---|
| | Estimated Groundwater Level Change from 2001- 2051 (in Feet) | Groundwater Level Impact** (in Feet) | Estimated Groundwater Level Change from 2001- 2051 (in Feet) | Groundwater Level Impact** (in Feet) |
| No Action | 15 | -- | 50 | -- |
| Settlement Alternative | 15 | 0 | 50 | 0 |
| Non-Settlement Alternative 1 | 15 | 0 | 50 | 0 |
| Non-Settlement Alternative 2 | 15 | 0 | 50 | 0 |
| Non-Settlement Alternative 3A | 15 | 0 | 50 | 0 |
| Non-Settlement Alternative 3B | 15 | 0 | 50 | 0 |
| (1) Represents filling of presently unfilled space in alluvium along San Carlos River. (2) Computed by subtracting the estimated groundwater decline from 2001 to 2051 for the No Action Alternative from the estimated change in groundwater level for the same period for the alternative under consideration. The estimated impact is considered to be more accurate than the estimated decline in groundwater levels. | | | | |

III.D.5. Socioeconomic

Under Alternative 2, the San Carlos would be allocated an additional 23,447 af of CAP water. Under Alternative 3, the San Carlos would be allocated an additional 40,000 af of CAP water. Under both alternatives, agricultural development is the assumed use of the additional allocation. For the purposes of this draft EIS, CAP Indian distribution system pipelines are assumed to be constructed with sufficient capacity to enable the San Carlos to use the CAP water in agriculture. The time frame for any construction is unknown.

The source of funding for construction of the delivery pipelines has not been identified and is beyond the scope of this analysis. Similarly, no analysis of the financial feasibility of an agricultural development has been carried out. Nevertheless, if constructed, the estimated construction costs are identified below. The construction estimates were performed, in April 2000, on a pre-appraisal basis for the purposes of this draft EIS only.

Under the No Action and Settlement Alternatives and Alternative 1, the San Carlos would receive only their existing CAP allocation of 61,645 af. The capacity of the CAP Indian distribution system would be about 31,665 af because 29,980 af are leased off the San Carlos under all alternatives. The CAP Indian distribution system is estimated to cost approximately \$60 million. Planning and construction of the system would require about seven years.

Under Alternative 2, the total construction cost of the CAP distribution system is estimated to be approximately \$150 million. The incremental cost would be approximately \$90 million. The construction cost would increase because an additional 23,447 af of capacity would have to be added to the CAP distribution system. Construction and planning of the CAP distribution system under Alternative 2 would require 10 years.

Under Alternative 3, the total construction cost of the CAP distribution system is estimated to be approximately \$205 million. The incremental cost would be approximately \$145 million. The construction cost would increase because an additional 40,000 af of capacity would have to be added to the CAP distribution system. Construction and planning would require about 10 years.

If the pipeline identified under Alternative 2 were constructed, the additional direct construction expenditures are projected to employ, on average, 128 persons each year over the estimated 10-year construction period. Total employment with indirect and induced impacts is projected to average 181 persons each year over the construction period. The total output impact is estimated to be \$118.1 million. The income impact is estimated to be \$36.4 million. The impacts would occur mainly in Graham County.

If the pipeline identified under Alternative 3 were constructed, the additional direct construction expenditures are projected to employ, on average, 199 persons each year over the estimated 10-year construction period. Total employment with indirect and induced impacts is projected to average 294 persons each year over the construction period. The total output impact is estimated to be \$191.3 million. The total income impact is estimated to be \$85.8 million. The impacts would occur mainly in Graham County.

The construction jobs and income may temporarily benefit the San Carlos by partially alleviating the high unemployment rate and low income earnings observed on the Reservation. Income statistics and unemployment rates are provided in Table L-Indian-20. Increased agricultural development following construction of the CAP distribution systems are projected to impact the San Carlos in terms of output, income, and employment. The San Carlos are assumed to use a cropping pattern that reflects existing cropping patterns on the Reservation. Thus, the cropping pattern is assumed to be 80 percent alfalfa and 20 percent corn.

Under Alternative 2, direct agricultural production is estimated to increase each year by \$3.3 million. The total impact, including indirect and induced output impacts, is estimated to be \$4.1 million. Income is estimated to increase by \$2.7 million annually.⁸ Direct employment impacts are estimated to account for 91 new jobs. A total of 106 jobs are projected to be created from the additional agricultural activity.

Under Alternative 3, direct agricultural production is projected to increase each year by \$5.7 million. The total output impact, including indirect and induced impacts, is estimated to be \$7.0 million. Income is projected to increase by \$4.6 million annually. Direct employment impacts are estimated to account for 155 new jobs. A total of 181 jobs are projected to be created from the additional agricultural activity.

The jobs and income created by the additional agricultural production could benefit the San Carlos by partially alleviating some of the unemployment on the Reservation.

| Table L-Indian-20 CAP Allocation Draft EIS Income Statistics for SC Apache Tribe | |
|---|------------------------|
| Type of Income | SC Apache Tribe |
| Median Household Income | \$8,743 |
| Per Capita Income (Poverty Status) | \$3,366 |
| Persons Below Poverty | 61% |
| Families Below Poverty | 63% |
| Female Households, Families Below Poverty | 72% |
| Households with Public Assistance Income | 36% |

Source: Bureau of the Census, 1990 Population and Housing Statistics

⁸ The value of the agricultural output is based on five-year average yields and prices for [Graham County or State?] published in the [year] Arizona Agricultural Statistics.